Utah Green House Gas Inventory

Stakeholder Working Group on Climate Change

2/13/07

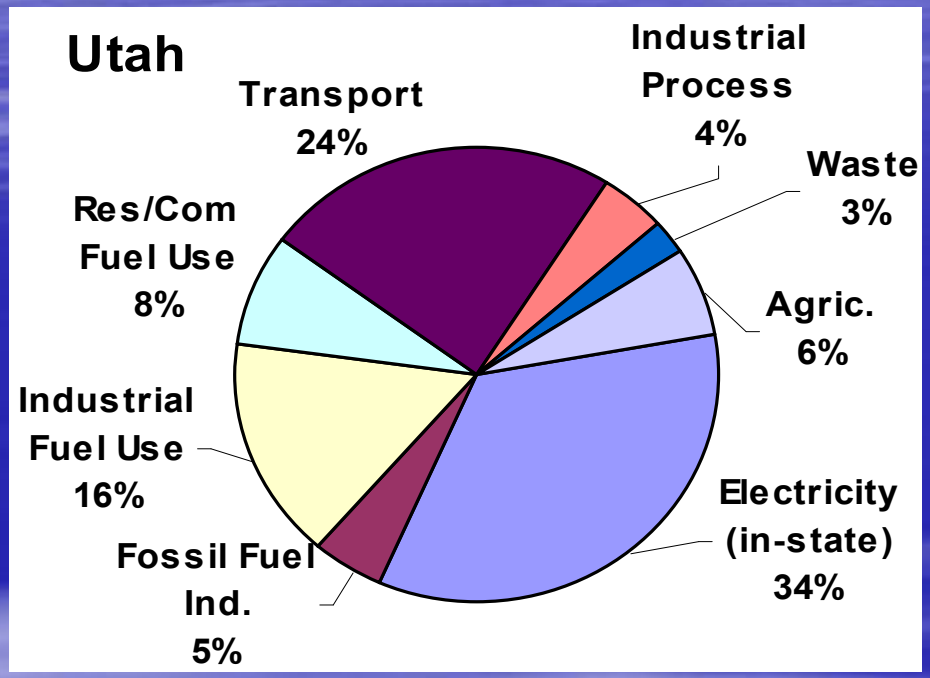
Emissions Inventory Status

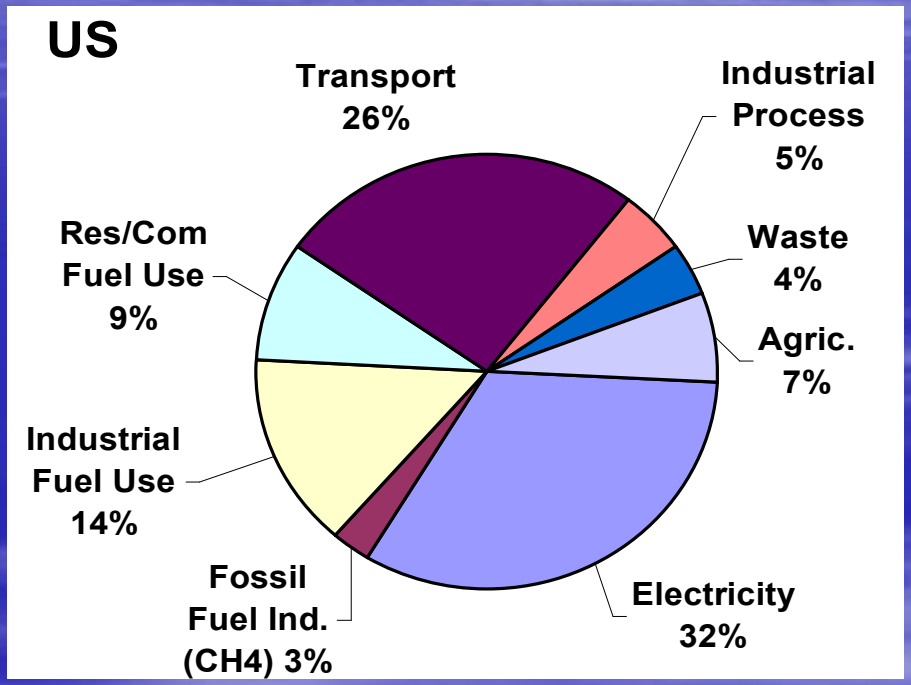
- Pechan has developed a draft report
- Draft has been reviewed by Utah and comments provided back to Pechan
- Comments are not expected to result in substantial changes in the sector totals
- Final version expected by 2/23

Inventory Approach

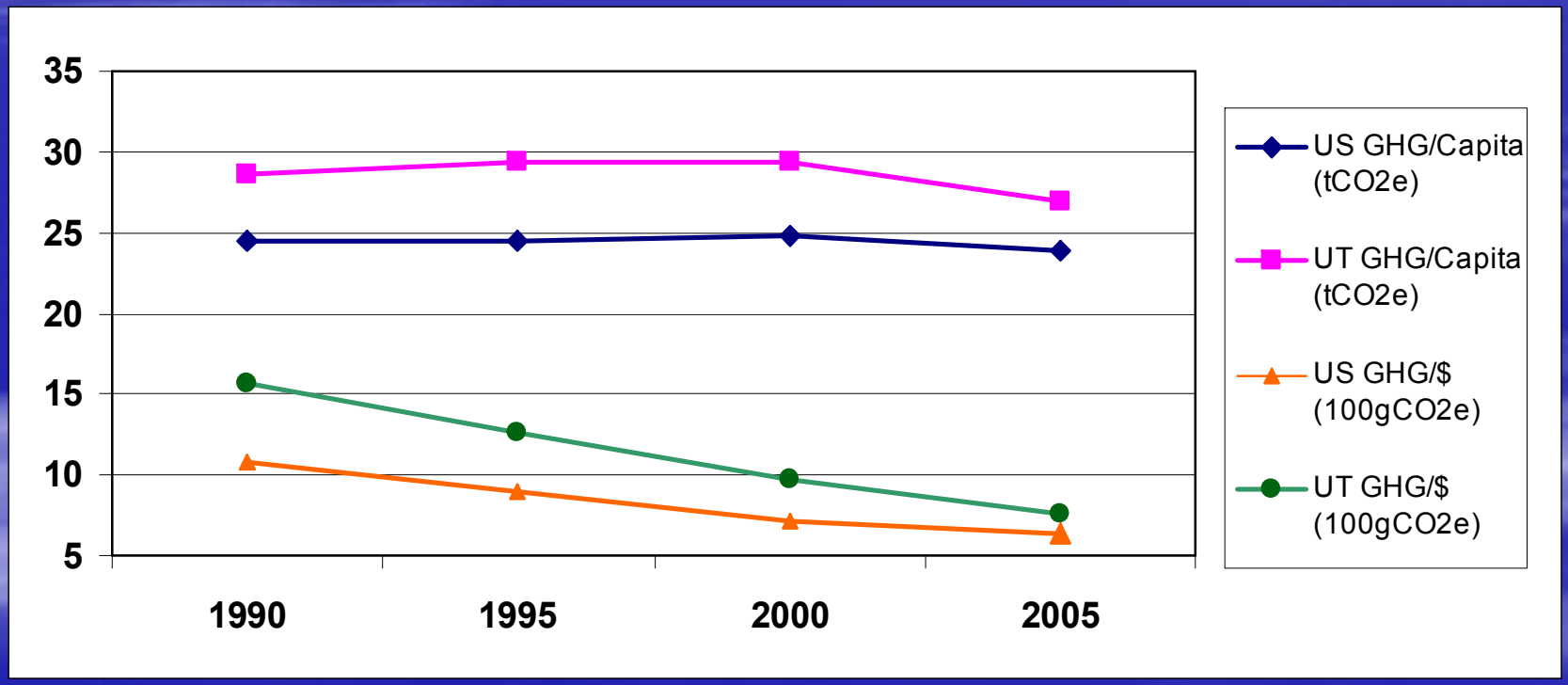
- Based on EPAI/IPCC methods using local conditions for all GHG emitting sectors
- Calculations made for the 6 standard GHGs
- Covers the period 1990 – 2020
- 1990 – 2005 uses accepted methods for GHG calculations w/Utah specific data
- 2006 – 2020 based on projections of electrical use, transportation and other GHG emitting activities
- Consumption based rather than production based
- Provides a general understanding of Utah's historical, current and expected GHG emissions

Utah & US Emissions by Sector Year 2000

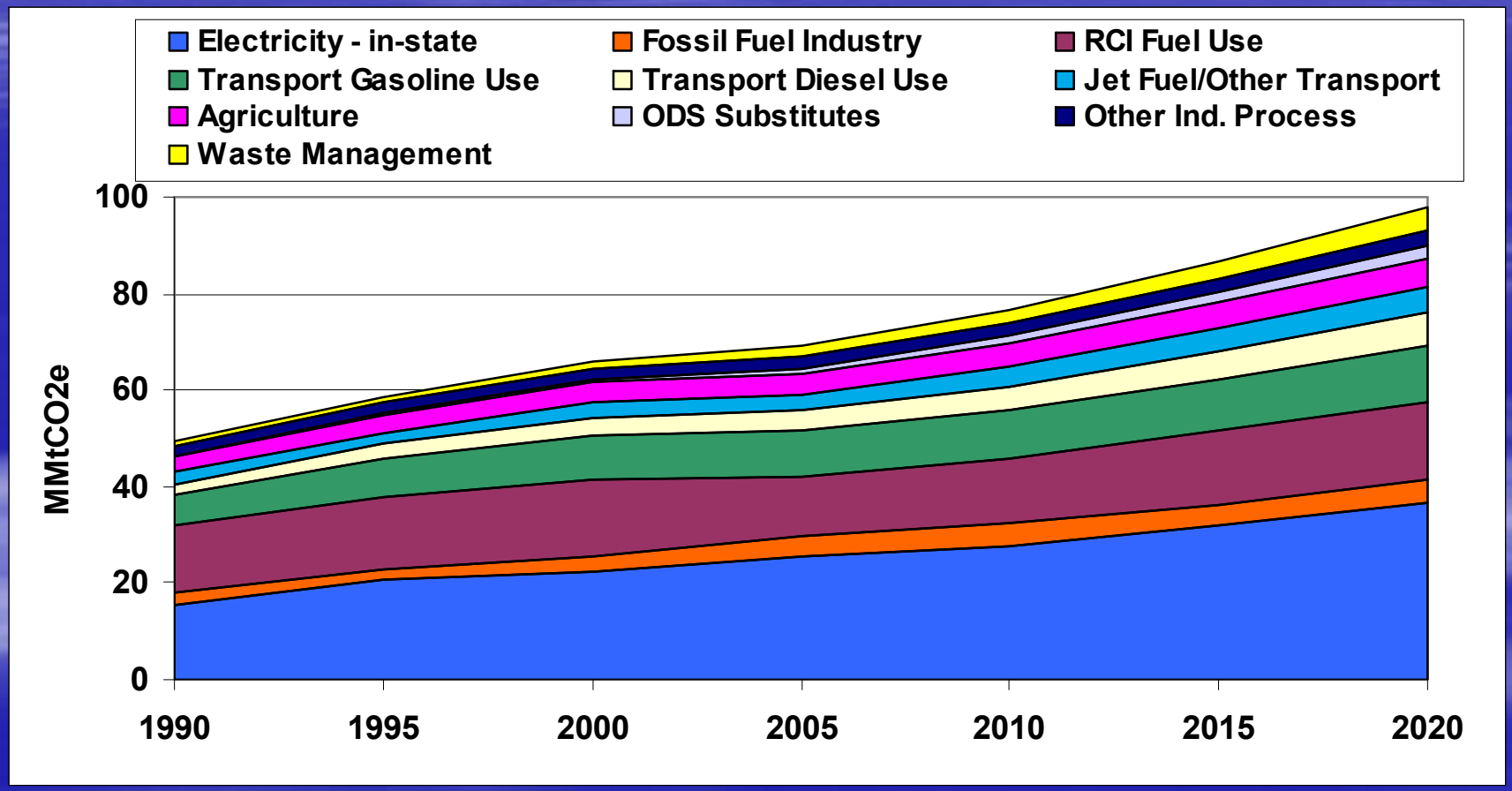




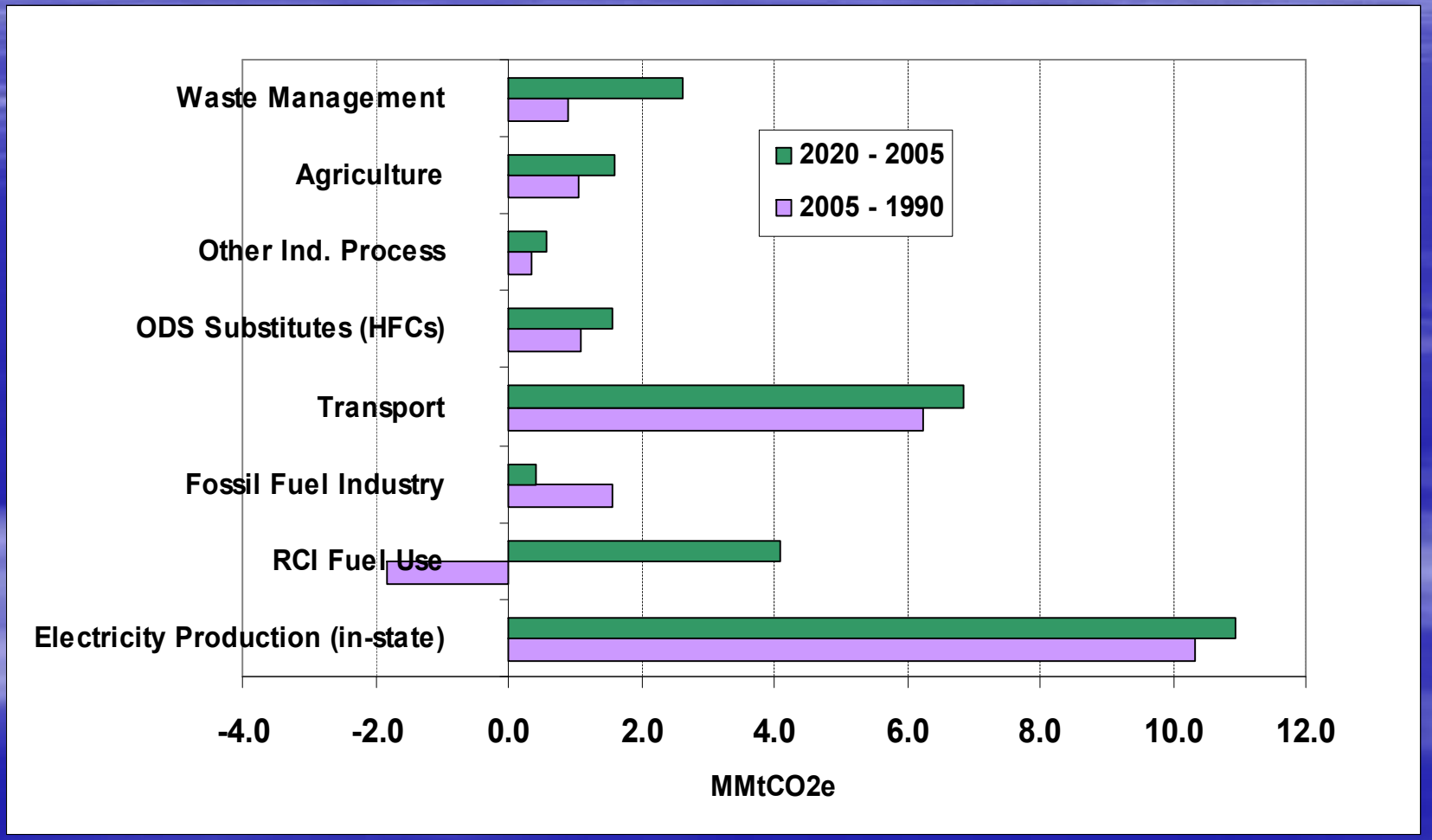
Utah and US GHG Emissions: Per Capita and Per Unit Gross Product



Utah Gross GHG Emissions by Sector, 1990-2020: Historical and Projected



Sector Contributions to Emissions Growth 1990-2020: Historic and Reference Case Projections



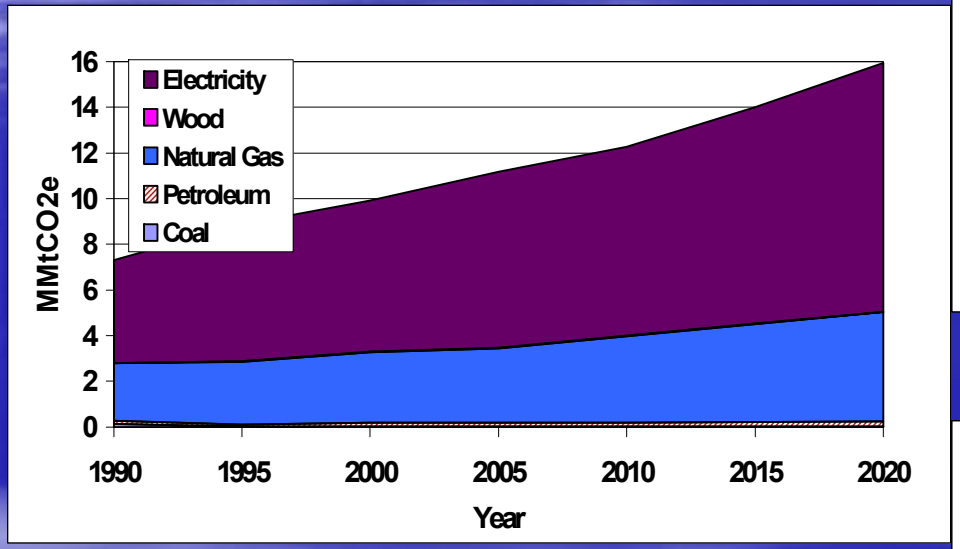
Key Annual Growth Rates for Utah, Historical and Projected

Key Parameter	1990 – 2005	2005 – 2020	Sources
Population	2.6%	2.1%	The Utah Governor's Office of Planning and Budget
Employment Goods Services	 2.3% 3.2%	 2.4% 1.6%	Utah Department of Workforce Services, The Utah Governor's Office of Planning and budget
Electricity Sales	3.3%	3.3%	EIA data for 1990 – 2005, Rocky Mountain Power for projections
Vehicle Miles Traveled	3.8%	2.3%	Utah Department of Transportation

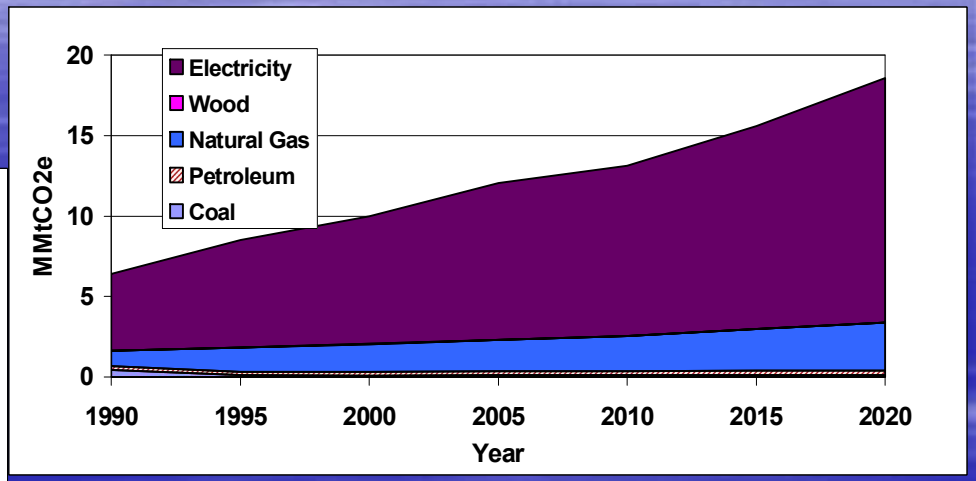
* Population and employment projections for Utah were used together with US DOE's Annual Energy Outlook 2006 projections of changes in fuel use on a per capita and per employee, as relevant for each sector. For instance, growth in Utah's residential natural gas use is calculated as the Utah population growth times the change in per capita natural gas use for the Mountain region.

Residential, Commercial & Industrial

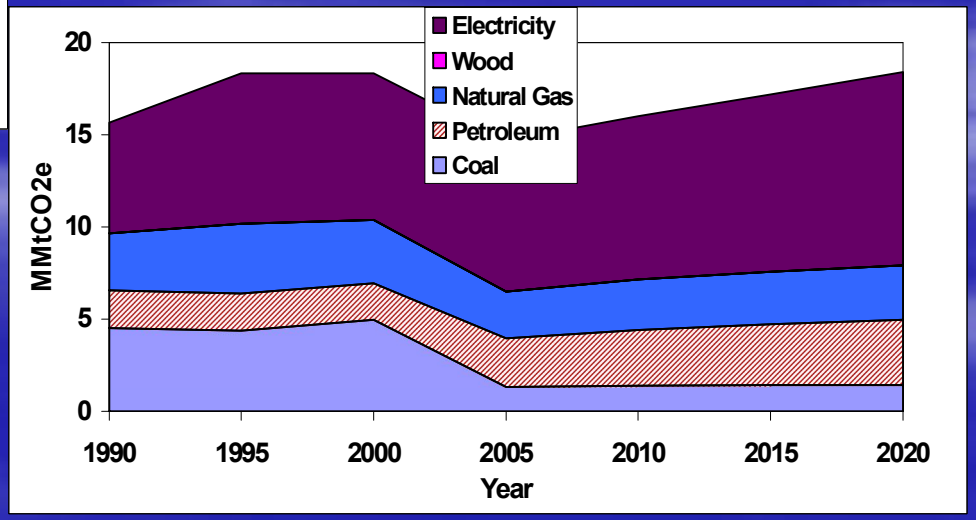
Residential Sector



Commercial Sector



Industrial Sector



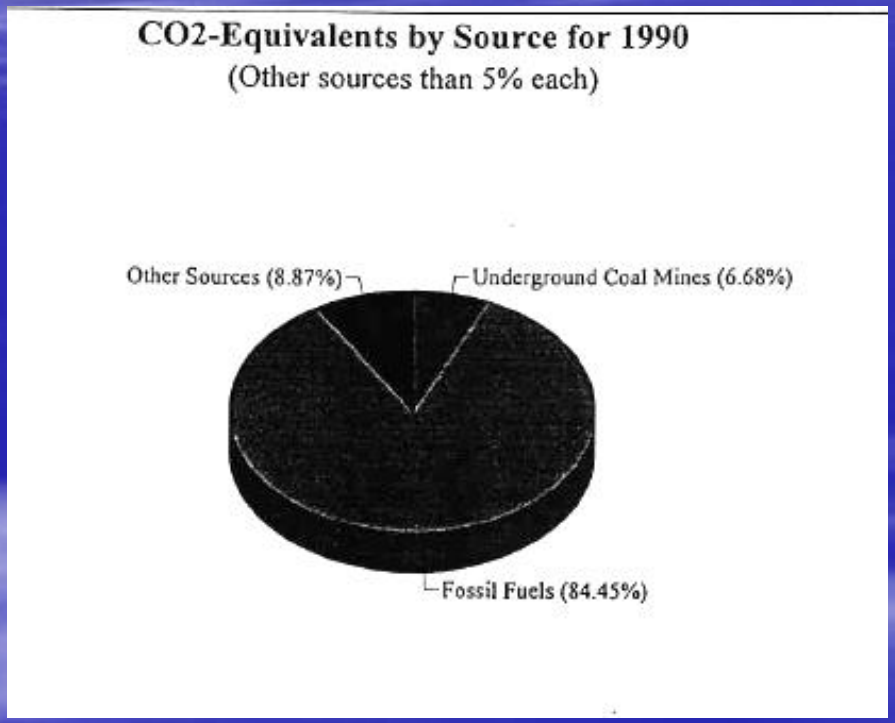
RCI Sector - Emissions from Electricity and Direct Fossil Fuel Use and the Percentage Associated with Electricity Generation

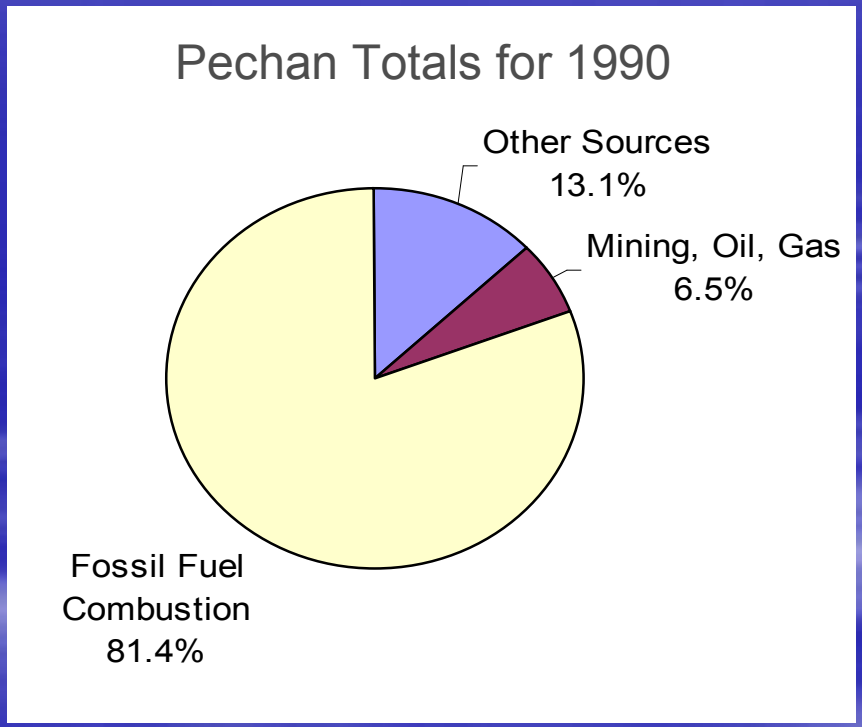
Sector	1990	2020
Residential		
Total MMT CO2e	7.3	16
% from Electricity Generation	62%	69%
Commercial		
Total MMT CO2e	6.4	18.6
% from Electricity Generation	75%	82%
Industrial		
Total MMT CO2e	15.7	18.4
% from Electricity Generation	38%	57%

Uncertainties

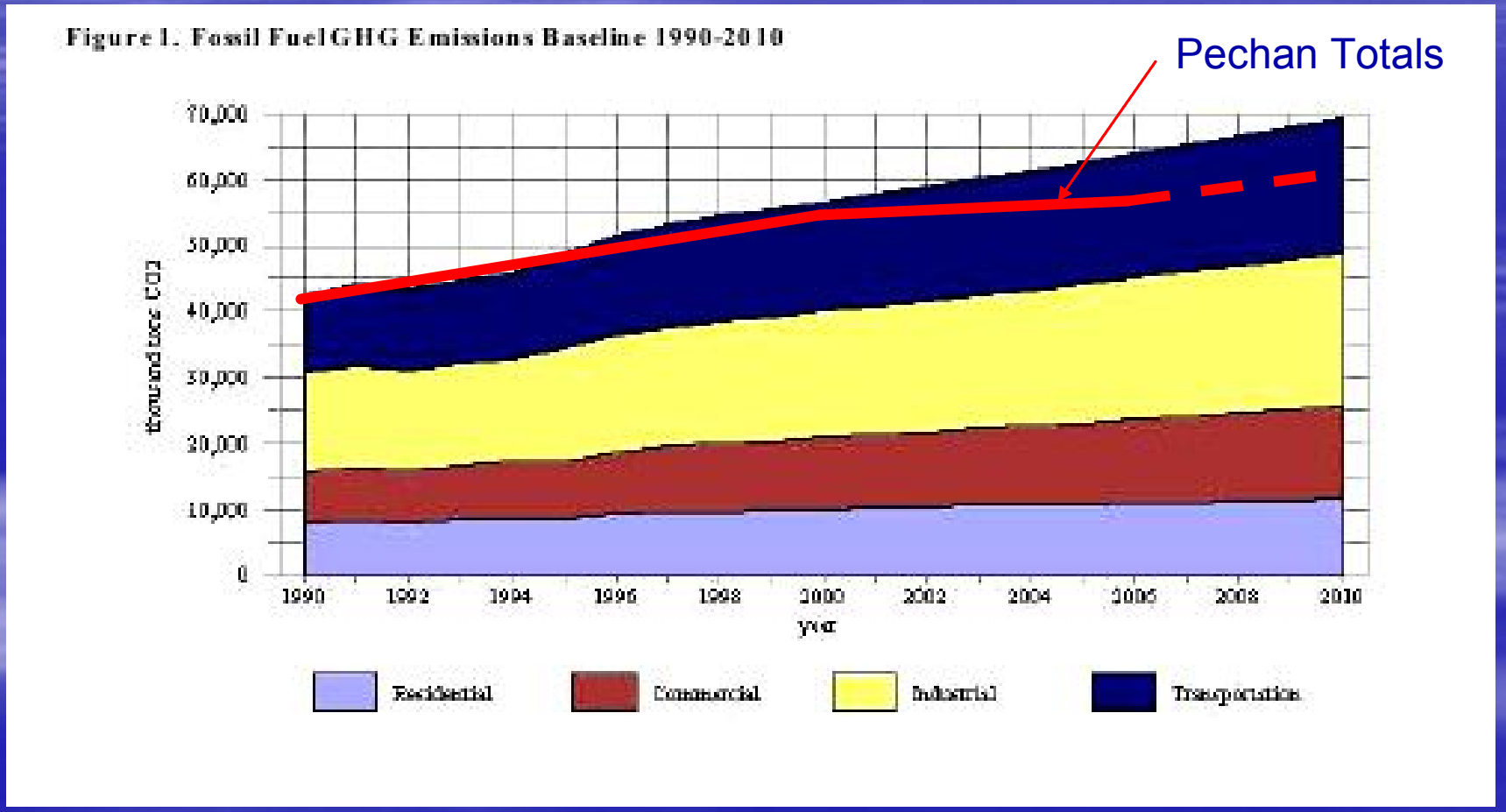
- Sectors with relatively small emissions were reported with less detail
- Emissions factors tend to be better for the larger emission sectors
- Future uncertainty in reference case projections
  - economic, demographic, land use
  - power plant construction
  - transportation - VMT

1990 DAQ EI is Consistent with Pechan EI





Pechan Trends are Consistent with 2000 OERP Report



Forestry Sinks and Black Carbon

Forestry

- 38MMT CO_2 sequestered annually in forestlands; significant but highly uncertain
- Considered to be an overestimate due to forest land classification changes by the USFS over time

Black Carbon

- BC estimated to be 4.9 MMT in 2002
- Highly uncertain CO_2e conversion
- Expect to decline by 2.8 MMT in 2018 due to new engine and fuel standards

Summary

- Pechan's report provides a high-level overview of the sources of GHG emissions in Utah
- In 2005 37% of Utah's emissions came from electricity use, 25% from transportation, and 18% from RCI combustion
- Emissions are expected to almost double (50MMT to 98MMT) between 1990 and 2020
- Areas of uncertainty, particularly in the projections and smaller sectors
- However, emissions totals are consistent with totals from prior in-state GHG inventories

Questions?